

**CLAIMS**

1. A hydrogel for use in the treatment or prevention of arthritis  
said hydrogel obtainable by combining acrylamide and methylene bis-acrylamide in  
5 amounts so as to give about 0.5 to 25% by weight polyacrylamide, based on the total  
weight of the hydrogel; radical initiation; and washing with pyrogen-free water or saline  
solution.
2. The hydrogel according to claim 1, wherein said combining acrylamide and methylene  
10 bis-acrylamide is in a molar ratio of 150:1 to 1000:1.
3. The hydrogel according to claim 1, comprising less than 15% by weight polyacrylamide,  
based on the total weight of the hydrogel, preferably less 10%, more preferably less than  
7.5%, even more preferably less than 5%, most preferably less than 3.5% by weight  
15 polyacrylamide, based on the total weight of the hydrogel.
4. The hydrogel according to claim 3 comprising at least 1% by weight polyacrylamide,  
based on the total weight of the hydrogel, preferably at least 1.5%, such as 1.6% by  
weight polyacrylamide, based on the total weight of the hydrogel.  
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5. The hydrogel according to claim 1 further comprising at least 75% by weight pyrogen-  
free water or saline solution, preferably pyrogen-free water.
6. The hydrogel according to claim 7 comprising at least 80% by weight pyrogen-free  
25 water or saline solution, preferably at least 85%, more preferably at least 90%, even more  
preferably at least 95% by weight pyrogen-free water or saline solution.
7. The hydrogel according to claim 1 having a complex viscosity of 2 to 25 Pa s, such as  
about 3 to 20 Pa s, preferably about 3 to 18 Pa s, most preferably about 3 to 15 Pa s.  
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8. The hydrogel according to claim 1 having a complex viscosity less than 25 Pa s and an  
elasticity modulus less than 200 Pa, preferably having a complex viscosity less than 15  
Pa s and an elasticity modulus less than 100 Pa.

9. Use of a hydrogel comprising about 0.5 to 25% by weight polyacrylamide, based on the total weight of the hydrogel, for the preparation of an endoprosthesis for alleviation or prevention of symptoms associated with arthritis.

5 10. The use according to claim 9, wherein the hydrogel comprises less than 15% by weight polyacrylamide, based on the total weight of the hydrogel, preferably less 10%, more preferably less than 7.5%, even more preferably less than 5%, most preferably less than 3.5% by weight polyacrylamide, based on the total weight of the hydrogel.

10 11. The use according to claim 10, wherein the hydrogel comprises at least 1% by weight polyacrylamide, based on the total weight of the hydrogel, preferably at least 1.5%, such as 1.6% by weight polyacrylamide, based on the total weight of the hydrogel.

12. The use according to claim 9, wherein the hydrogel has a complex viscosity of about 2  
15 to 25 Pa s, such as about 3 to 20 Pa s, preferably about 3 to 18 Pa s, most preferably about 3 to 15 Pa s.

13. The use according to claim 12, wherein the hydrogel further comprises at least 75%  
20 by weight pyrogen-free water or saline solution, preferably pyrogen-free water.

14. The use according to claim 12, wherein the hydrogel comprises at least 80% by  
weight pyrogen-free water or saline solution, preferably at least 85 %, more preferably at  
least 90%, even more preferably at least 95% by weight pyrogen-free water or saline  
solution.

25 15. The use according to claim 9, wherein the endoprosthesis is injected into the intra-articular cavity of a joint.

16. The use according to claim 9, wherein the hydrogel comprises at least 90% by weight  
30 pyrogen-free water or saline solution.

17. A method of treating or preventing arthritis comprising administering a hydrogel to a mammal said hydrogel comprising 0.5 to 25% by weight polyacrylamide, based on the total weight of the hydrogel.

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18. The method according to claim 17, wherein the hydrogel is obtainable by combining acrylamide and methylene bis-acrylamide in a molar ratio of 150:1 to 1000:1.

19. The method according to claim 17, wherein the hydrogel comprises less than 15% by weight polyacrylamide, based on the total weight of the hydrogel, preferably less 10%, more preferably less than 7.5%, even more preferably less than 5%, most preferably less than 3.5% by weight polyacrylamide, based on the total weight of the hydrogel.

20. The method according to claim 19, wherein the hydrogel comprises at least 1% by weight polyacrylamide, based on the total weight of the hydrogel, preferably at least 1.5%, such as 1.6% by weight polyacrylamide, based on the total weight of the hydrogel.

21. The method according to claim 17, wherein the hydrogel has a complex viscosity of about 2 to 25 Pa s, such as about 3 to 20 Pa s, preferably about 3 to 18 Pa s, most preferably about 3 to 15 Pa s.

22. The method according to claim 17, wherein the hydrogel further comprises at least 75% by weight pyrogen-free water or saline solution, preferably pyrogen-free water.

23. The method according to claim 22, wherein the hydrogel comprises at least 80% by weight pyrogen-free water or saline solution, preferably at least 85 %, more preferably at least 90%, even more preferably at least 95% by weight pyrogen-free water or saline solution.

24. The method according to claim 17, wherein the administering comprises injecting the hydrogel into the intra-articular cavity of a joint.

25. The method according to claim 17, wherein the hydrogel is radio-labelled and the administering may be monitored by visualisation.

26. The method according to claim 17, comprising further injections to excessively stressed areas of the cavity.

27. A prosthetic device for the treatment of arthritis, wherein the device comprises a polyacrylamide hydrogel comprising 0.5 to 25% by weight polyacrylamide, based on the total weight of the hydrogel, said device administered to the intra-articular cavity of joint.

5 28. The prosthetic device according to claim 27, wherein the hydrogel further comprises at least 75% by weight pyrogen-free water or saline solution, preferably pyrogen-free water.

29. A prosthetic device for augmenting or replacing cartilage in the intra-articular cavity of a joint, said device comprising a polyacrylamide hydrogel comprising 0.5 to 25% by  
10 weight polyacrylamide, based on the total weight of the hydrogel.

30. The prosthetic device according to claim 29, wherein the hydrogel further comprises at least 75% by weight pyrogen-free water or saline solution, preferably pyrogen-free water.

15 31. The prosthetic device according to claim 27, implanted or injected into the intra-articular cavity of a joint, preferably injected.

32. The prosthetic device according to claim 27, wherein the device is implanted and surface treated.

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33. The prosthetic device according to claim 27, wherein the joint is selected from the group consisting of a knee joint; a hip joint; and the metacarpal-phalangeal and interphalangeal joints in hands and feet.

25 34. The prosthetic device according to claim 27, wherein the hydrogel is radio-labelled.

35. The prosthetic device according to claim 28, wherein the joint comprises a knee joint, a hip joint, or the metacarpal-phalangeal or interphalangeal joints in hands and feet.